IB828

AMD Athlon™ 64 / Athlon™ 64 x2
(Dual Core) / Sempron™
Embedded Board

USER'S MANUAL

Version 1.0

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Introduction

Product Description

The IB828 Embedded board incorporates the high performance AMD 780E embedded PC chipset optimized for AMD Socket AM2 processors with speeds up to 2.9GHz and with FSB up to 2000MHz. The board has two DDR II SODIMM sockets to support a maximum memory capacity of 4GB. Particular attention is given to multiple high-resolution display interfaces including a HDMI connector at the edge of the board.

IB828 Product Features:

- With AMD 780E / SB710 Chipset
- Supports Socket AM2 CPUs, AMD Athlon™ 64 / Athlon™ 64 x2 (dual core) / Sempron™
- Supports up to 2.9GHz, FSB 2000MHz
- HDMI multiple display interface
- PCIe Gigabit LAN (Realtek RTL8111C)
- Dual DDR II SODIMM sockets, up to 4GB
- 6x USB, 2x COM, 2x Mini PCIe socket, HDA audio, 1x SATAII HDD dock

Checklist

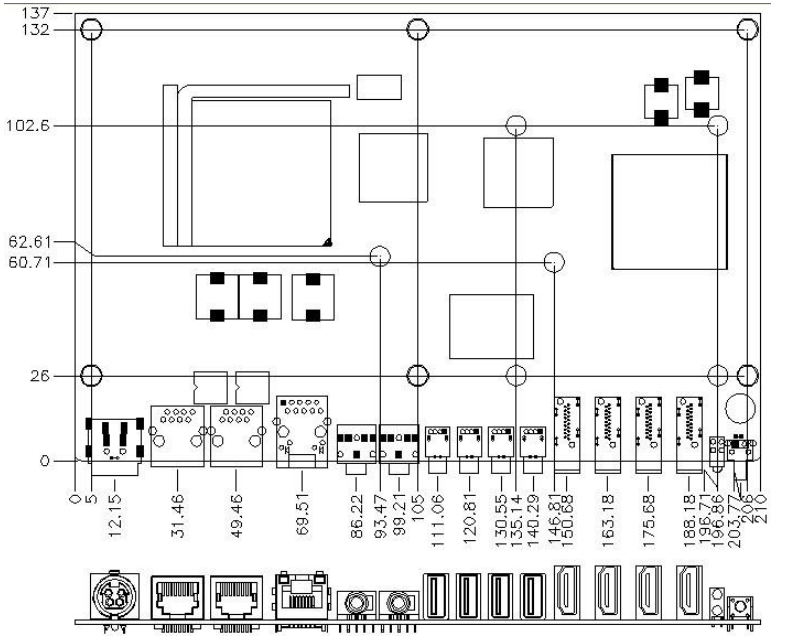
Your IB828 package should include the items listed below.

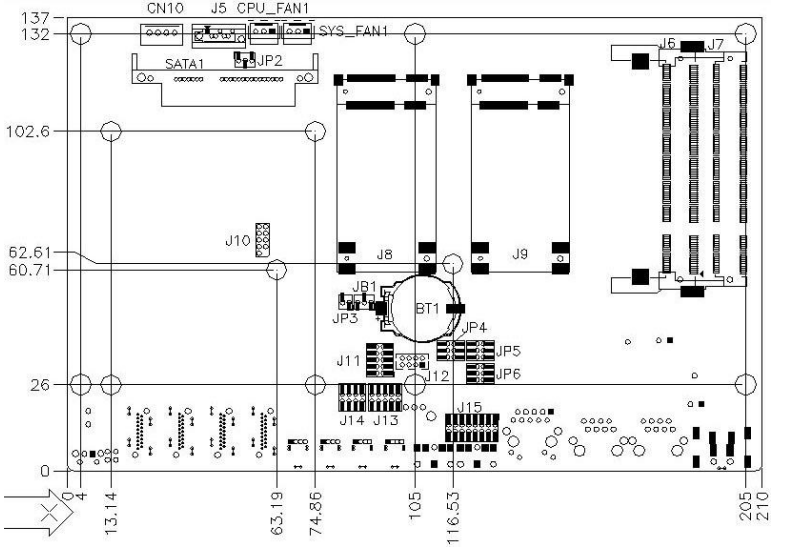
- The IB828 embedded board
- This User's Manual
- 1 CD containing chipset drivers and flash memory utility
-

IB828 Specifications

CPU Type	AMD Socket AM2+/AM3 ; PGA 940-pins **(supporting <= 45W CPUs only)**
System Speed	800~1600 MHz (Hyper Transport)
CPU FSB	1.0 ~ 2.6GHz
Cache	512~2048 KB L2 cache
Green /APM	APM1.2
BIOS	Award BIOS: supports ACPI Function
Chipset	North Bridge:M780**E** South Bridge: SB710
Memory	2 x 200-pin DDRII SO-DIMM, **Dual Channel**, Max. capacity 4GB
Video – AMD 780E (Primary)	AMD M780**E** built-in Radeon HD3200 based graphic engine, supports full DirectX10.0. Dual concurrent displays (max) - **2 x HDMI**
Video – M96 (Optional)	**M96-CSP512 (E4690) GPU** **- 2 x HDMI**
LAN	Realtek RTL8111C PCI-e Gigabit LAN controller x 1
USB	AMD SB710 built-in USB 2.0 host controller, support 6 ports 4 x external ports, 2 x-pin headers
Audio	AMD SB710 built-in audio controller + HDA ALC888 w/ 7.1 channels, (External Front L/R, Rear L/R)
IDE	None
LPC I/O	Winbond W83627EHG 2 x COM & hardware monitor, smart DC fan control
RTC/CMOS	SB710 built-in with on board Lithium Battery
Edge Connector	4 x single vertical HDMI connector **(one joint audio)** 4 x USB connectors 2 x RJ45 for 2 COM ports (COM1: RS232, COM2: RS232/422/485) 1 x RJ-45 GLAN connector 2 x Microjack Audio connectors 1 x DIN4 DC-IN power connector 1 x Power Switch button 1 x Reset button 1 x HDD LED 1 x Power LED
On Board Headers	1 x pin header for 2 x USB ports 1 x header for HDA Audio outputs 2 x mPCIe slot (52-pin PCIe Minicard Slot) 1 x system fan pin header (w/ Smart DC fan control) 1 x CPU fan pin header (w/ Smart DC fan control)
Watchdog Timer	Yes (256 segments, 0, 1, 2…255. sec/min)
Power Connector	Power Mini DIN-4
System Size	200(W) x 250(L) mm x 35(H)
Serial ATA	AMD SB710 built-in SATA II (3.0Gb/sec) host controller, supports 1 x SATA 2.5 HDD Dock

Board Dimensions





Bottom View

Installations

This section provides information on how to use the jumpers and connectors on the IB828 in order to set up a workable system. The topics covered are:

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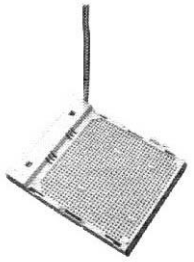
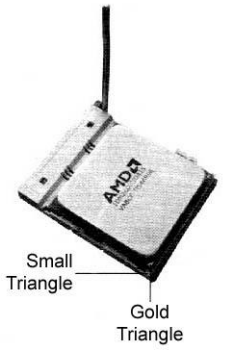
Installing the CPU

The IB828 board supports a Socket AM2 (940-pin) processor socket for AMD Athlon™ 64 / Athlon™ 64 x2 (dual core) / Sempron™ processors. To install the CPU, unlock first the socket by pressing the lever sideways, then lift it up to a 90-degree angle as shown below. Then, position the CPU above the socket such that the CPU corner aligns with the gold triangle matching the socket corner with a small triangle. Carefully insert the CPU into the socket and push down the lever to secure the CPU. Then, install the heat sink and fan.





***NOTE**: Ensure that the CPU heat sink and the CPU top surface are in total contact to avoid CPU overheating problem that would cause your system to hang or be unstable.*

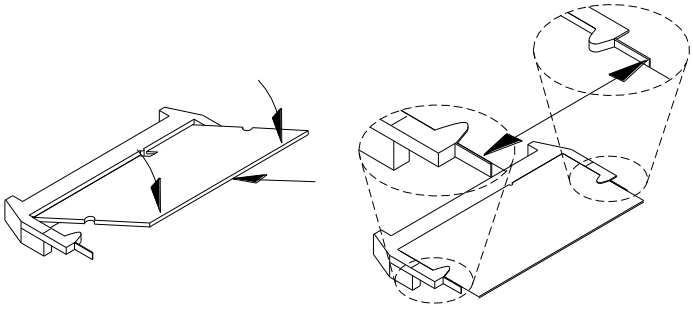
Installing the Memory

The IB828 board supports two DDR2 memory sockets that can support up to 4GB memory, DDR2 400/533/667 (w/o ECC function).

Installing and Removing Memory Modules

To install the DDR2 modules, locate the memory slot on the board and perform the following steps:

1. Hold the DDR2 module so that the key of the DDR2 module aligns with that on the memory slot. Insert the module into the socket at a slight angle (approximately 30 degrees). Note that the socket and module are both keyed, which means that the module can be installed only in one direction.
2. To seat the memory module into the socket, apply firm and even pressure to each end of the module until you feel it slip down into the socket.
3. With the module properly seated in the socket, rotate the module downward. Continue pressing downward until the clips at each end lock into position.
4. To remove the DDR2 module, press the clips with both hands.



Setting the Jumpers

Jumpers are used on IB828 to select various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your needs. The following lists the connectors on IB828 and their respective functions.

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JP4, JP5, JP6: RS232/422/485 (COM2) Selection 10
JB1: Clear CMOS Contents 11

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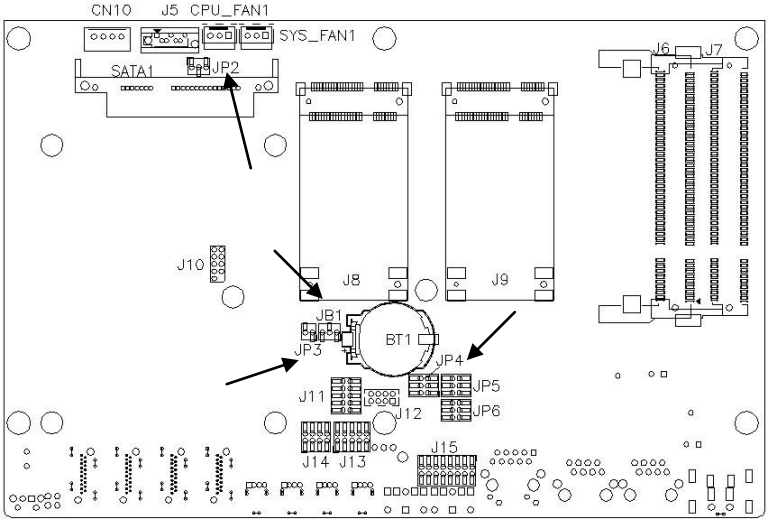
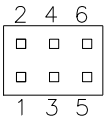


JP2: ATX or AT Power Selection

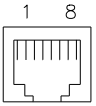
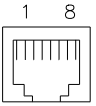
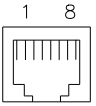
JP2	ATX Power
	ATX
	AT

JP4, JP5, JP6: RS232/422/485 (COM2) Selection

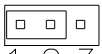
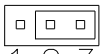
COM1 is fixed for RS-232 use only. COM2 is selectable for RS232, RS-422 and RS-485. The following describes the settings for COM2.



COM2 Function	RS-232	RS-422	RS-485
Jumper Setting (pin closed)	JP4: 1-2 JP5: 3-5 & 4-6 JP6: 3-5 & 4-6	JP4: 3-4 JP5: 1-3 & 2-4 JP6: 1-3 & 2-4	JP4: 5-6 JP5: 1-3 & 2-4 JP6: 1-3 & 2-4

Pin #	Signal Name		
	RS-232	R2-422	RS-485
1	RTS	RTS+	NC
2	DTR	RX-	NC
3	TXD	RX+	NC
4	GND	GND	GND
5	DCD	TX-	DATA-
6	RXD	TX+	DATA+
7	DSR	RTS-	NC
CN1, CN2			

JB1: Clear CMOS Contents

JB1	Setting	Function
	Pin 1-2 Short/Closed	Normal
	Pin 2-3 Short/Closed	Clear CMOS

Connectors on IB828

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U32: Gigabit LAN RJ45 Port 14
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CPU_FAN1: DC-CPU Fan Power Connector 17
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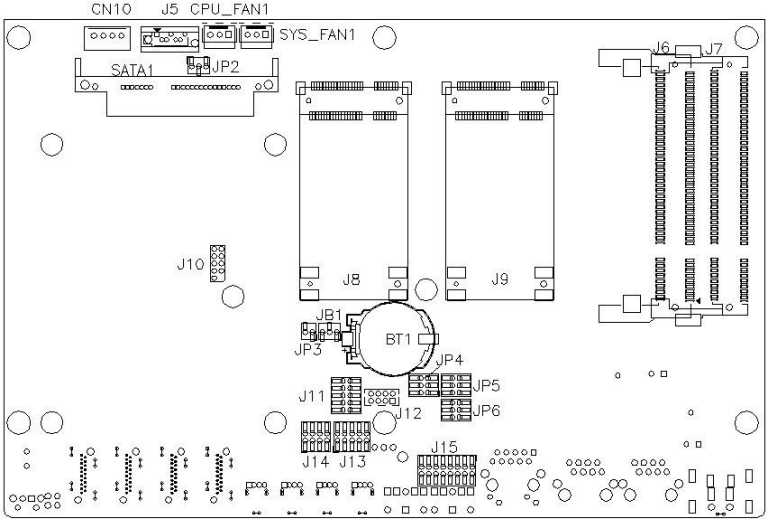
Connector Locations on IB828



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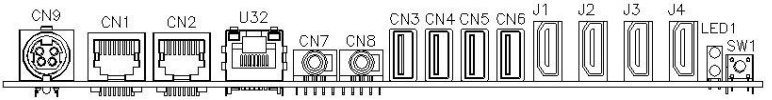
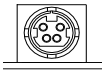


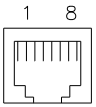
CN9: DC Power Jack (+12V only)



Pin #	Signal Name
1	+12V
2	+12V
3	GND
4	GND
5	GND

CN1, CN2: Console port

The console port is an RJ45 RS-232 serial port.



Pin #	Signal Name
1	RTS
2	DTR
3	TXD
4	GND
5	DCD
6	RXD
7	DSR
8	CTS

U32: Gigabit LAN RJ45 Port

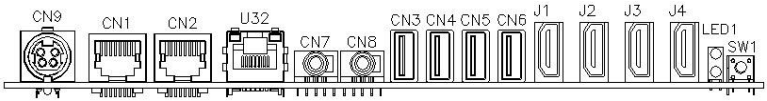
CN7, CN8: Audio Line In and Line Out

CN3, CN4, CN5, CN6: USB1/2/3/4 Ports

SW1: Power Button

LED1: Power LED and HDD LED

The green LED at the bottom is power LED. The red LED on top is the HDD LED.



J1, J2: AMD 780E HDMI Connector

Signal Name	Pin #	Pin #	Signal Name
DATA 2-	1	2	GND
DATA 2+	3	4	DATA 1+
GND	5	6	DATA 1-
DATA 0+	7	8	GND
DATA 0-	9	10	CLOCK +
GND	11	12	CLOCK -
NC	13	14	NC
DDC CLOCK	15	16	DDC DATA
GND	17	18	+5V
HOT POWER	19	20	N.C.

J3, J4: ATI E4690 HDMI Connector

Signal Name	Pin #	Pin #	Signal Name
DATA 2-	1	2	GND
DATA 2+	3	4	DATA 1+
GND	5	6	DATA 1-
DATA 0+	7	8	GND
DATA 0-	9	10	CLOCK +
GND	11	12	CLOCK -
NC	13	14	NC
DDC CLOCK	15	16	DDC DATA
GND	17	18	+5V
HOT POWER	19	20	N.C.

J15: USB6/USB7 Connector

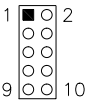
Signal Name	Pin	Pin	Signal Name
Vcc	1	5	Ground
D0-	2	6	D1+
D0+	3	7	D1-
Ground	4	8	Vcc

SATA1: SATA HDD Dock

The SATA HDD dock combines a SATA power connector and a SATA interface connector.

Signal Name	Pin #	Pin #	Signal Name
GND	S1	P1	V3.3
A+	S2	P2	V3.3
A-	S3	P3	V3.3
GND	S4	P4	GND
B+	S5	P5	GND
B-	S6	P6	GND
GND	S7	P7	GND
		P8	V5
		P9	V5
		P10	V5
		P11	Reserve
		P12	GND

J5: Audio Pin Header for Chassis Front Panel



Signal Name	Pin	Pin	Signal Name
S_SURR_L	1	2	S_SURR_R
S_SURR_JD	3	4	GND
R_SURR_L	5	6	R_SURR_R
R_SURR_JD	7	8	GND
MIC1	9	10	MIC2
MIC_JD	11	12	GND
CEN	13	14	LFE
CEN_JD	15	16	Ground

J6: DDR II DIMM Socket CHA

J7: DDR II DIMM Socket CHB

J8, J9: Mini PCI-E X1 Socket

J13: Digital I/O Connector (4 in, 4 out)

Signal Name	Pin #	Pin #	Signal Name
Ground	1	6	+5V
Out3	2	7	Out1
Out2	3	8	Out0
IN3	4	9	IN1
IN2	5	10	IN0

CPU_FAN1: DC-CPU Fan Power Connector

Pin #	Signal Name
1	Rotation detection
2	+12V
3	Ground

SYS_FAN1: DC-system Fan Power Connector

Pin #	Signal Name
1	Rotation detection
2	+12V
3	Ground

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BIOS Setup

This chapter describes the different settings available in the Award BIOS that comes with the board. The topics covered in this chapter are as follows:

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BIOS Setup 20
Standard CMOS Setup 22
Advanced BIOS Features 24
Advanced Chipset Features 27
Integrated Peripherals 26
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PNP/PCI Configurations 33
PC Health Status 34
Frequency/Voltage Control 35
Load Fail-Safe Defaults 36
Load Optimized Defaults 36
Set Supervisor/User Password 36
Save & Exit Setup 36
Exit Without Saving 36

BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports various processors. The BIOS provides critical low-level support for a standard device such as disk drives, and serial ports. It also adds virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

BIOS Setup

The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the Award BIOS is immediately activated. Pressing the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again. The following message will appear on the screen:

```
Press  <DEL>  to  Enter  Setup
```

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

Phoenix - AwardBIOS CMOS Setup Utility

Standard CMOS Features	Frequency/Voltage Control
Advanced BIOS Features	Load Fail-Safe Defaults
Advanced Chipset Features	Load Optimized Defaults
Integrated Peripherals	Set Supervisor Password
Power Management Setup	Set User Password
PnP/PCI Configurations	Save & Exit Setup
PC Health Status	Exit Without Saving
ESC : Quit F10 : Save & Exit Setup	↑ ↓ → ← : Select Item
Time, Date, Hard Disk Type…	

The section below the setup items of the Main Menu displays the control keys for this menu. At the bottom of the Main Menu just below the control keys section, there is another section, which displays information on the currently highlighted item in the list.

***Note**: If the system cannot boot after making and saving system changes with Setup, the Award BIOS supports an override to the CMOS settings that resets your system to its default.*

***Warning:** It is strongly recommended that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability. Changing the defaults could cause the system to become unstable and crash in some cases.*

Standard CMOS Setup

"Standard CMOS Setup" choice allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the motherboard is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Wed, Apr 28, 2007	Item Help
Time (hh:mm:ss)	00 : 00 : 00	Menu Level >
IDE Channel 0 Master	None	Change the day, month,
IDE Channel 0 Slave	None	Year and century
IDE Channel 2 Master	None	
IDE Channel 2 Slave	None	
IDE Channel 3 Master	None	
IDE Channel 3 Slave	None	
Halt On	No Errors	
Base Memory	640K	
Extended Memory	129024K	
Total Memory	130048K	

At the bottom of the menu are the control keys for use on this menu. If you need any help in each item field, you can press the <F1> key. It will display the relevant information to help you. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following describes each item of this menu.

Date

The date format is:

Day :	**Sun to Sat**
Month :	**1 to 12**
Date :	**1 to 31**
Year :	**1999 to 2099**

To set the date, highlight the "Date" field and use the PageUp/ PageDown or +/- keys to set the current time.

Time

The time format is: **Hour : 00 to 23**
Minute : 00 to 59
Second : 00 to 59

To set the time, highlight the "Time" field and use the <PgUp>/ <PgDn> or +/- keys to set the current time.

IDE Channel Master/Slave

The onboard PCI IDE connector provides Primary and Secondary channels for connecting up to two IDE hard disks or other IDE devices.

Press <Enter> to configure the hard disk. The selections include Auto, Manual, and None. Select 'Manual' to define the drive information manually. You will be asked to enter the following items.

CYLS :	Number of cylinders
HEAD :	Number of read/write heads
PRECOMP :	Write precompensation
LANDING ZONE :	Landing zone
SECTOR :	Number of sectors

Remarks: The main board supports two serial ATA ports and are represented in this setting as IDE Channel 0.

Halt On

This field determines whether or not the system will halt if an error is detected during power up.

No errors	The system boot will not be halted for any error that may be detected.
All errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.
All, But Keyboard	The system boot will not be halted for a keyboard error; it will stop for all other errors
All, But Diskette	The system boot will not be halted for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not be halted for a key-board or disk error; it will stop for all others.

Advanced BIOS Features

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features

CPU Feature	Press Enter	ITEM HELP
Hard Disk Boot Priority	Press Enter	
Virus Warning	Disabled	
CPU Internal Cache	Enabled	
External Cache	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Hard Disk	
Second Boot Device	CDROM	
Third Boot Device	LS120	
Boot Other Device	Enabled	
Boot Up NumLock Status	On	
Gate A20 Option	Fast	
Typematic Rate Setting	Disabled	
Typematic Rate (Chars/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup	
APIC Mode	Enabled	
MPS Version Control for OS	1.4	
OS Select For DRAM>64MB	Non-OS2	
HDD S.M.A.R.T. Capability	Disabled	

CPU Feature

Press Enter to configure the settings relevant to CPU Feature.

Hard Disk Boot Priority

With the field, there is the option to choose, aside from the hard disks connected, "Bootable add-in Cards" which refers to other external devices.

Virus Warning

If this option is enabled, an alarm message will be displayed when trying to write on the boot sector or on the partition table on the disk, which is typical of the virus.

CPU Internal and External Cache

Cache memory is additional memory that is faster than conventional DRAM (system memory). CPUs from 486-type on up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for even faster access by the CPU. These allow you to enable (speed up memory access) or disable the cache function.

Quick Power On Self Test
When enabled, this field speeds up the Power On Self Test (POST) after the system is turned on. If it is set to *Enabled*, BIOS will skip some items.

First/Second/Third Boot Device
These fields determine the drive that the system searches first for an operating system. The options available include *Floppy*, *LS120*, *Hard Disk*, *CDROM*, *ZIP100*, *USB-Floppy*, *USB-ZIP*, *USB-CDROM*, *LAN* and *Disable*.

Boot Other Device
These fields allow the system to search for an OS from other devices other than the ones selected in the First/Second/Third Boot Device.

Boot Up NumLock Status
This allows you to activate the NumLock function after you power up the system.

Gate A20 Option
This field allows you to select how Gate A20 is worked. Gate A20 is a device used to address memory above 1 MB.

Typematic Rate Setting
When disabled, continually holding down a key on your keyboard will generate only one instance. When enabled, you can set the two typematic controls listed next. By default, this field is set to ***Disabled.***

Typematic Rate (Chars/Sec)
When the typematic rate is enabled, the system registers repeated keystrokes speeds. Settings are from 6 to 30 characters per second.

Typematic Delay (Msec)
When the typematic rate is enabled, this item allows you to set the time interval for displaying the first and second characters. By default, this item is set to ***250msec.***

Security Option

This field allows you to limit access to the System and Setup. The default value is ***Setup***. When you select *System*, the system prompts for the User Password every time you boot up. When you select *Setup*, the system always boots up and prompts for the Supervisor Password only when the Setup utility is called up.

APIC Mode

APIC stands for Advanced Programmable Interrupt Controller. The default setting is ***Enabled***.

MPS Version Control for OS

This option is specifies the MPS (Multiprocessor Specification) version for your operating system. MPS version 1.4 added extended configuration tables to improve support for multiple PCI bus configurations and improve future expandability.
The default setting is ***1.4***.

OS Select for DRAM > 64MB

This option allows the system to access greater than 64MB of DRAM memory when used with OS/2 that depends on certain BIOS calls to access memory. The default setting is ***Non-OS/2***.

HDD S.M.A.R.T. Capability

By default, this field is disabled.

Advanced Chipset Features

This Setup menu controls the configuration of the chipset.

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

		ITEM HELP
PCIE Configuration	Press Enter	
IGX Configuration	Press Enter	
Init Display First	IGX	
NB Power Management	Auto	
Memory Hole	Disabled	
System BIOS Cacheable	Disabled	

Phoenix - AwardBIOS CMOS Setup Utility
PCIE Configuration

		ITEM HELP
Primary Dual Slot Config	Enabled	
Gpp Slots Power Limit , W	25	
▶GFX Port 1	Press Enter	
▶GFX Port 2	Press Enter	
▶GPP1	Press Enter	
▶GPP2	Press Enter	
▶GPP3	Press Enter	
▶GPP4	Press Enter	
▶GPP5	Press Enter	
▶GPP6	Press Enter	
▶NB-SB Port Features	Press Enter	

Phoenix - AwardBIOS CMOS Setup Utility
IGX Configuration

		ITEM HELP
Internal Graphic Mode	UMA+SidePort	
UMA Frame Buffer Size	Auto	
IGX Engine Clock Override	Disable	
IGX Engine Clock	500	
NB Azalia	Enable	

PCIE Configuration

The fields under PCIE Configuration features settings for *Primary Dual Slot Config, GPP Slots Power Limit, GFX ports, GPPs and NB-SB port features.*

Internal Graphics Mode

The settings for IB828 are *Disabled* and *UMA*; while the IB828 has additional settings of *Sideport* and *UMA+sideport*.

Init Display First

The default setting is ***IGX***.

NB Power Management

The default setting is ***Auto***.

Memory Hole At 15M-16M

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB. The choices are *Enabled* and *Disabled*.

System BIOS Cacheable

The setting of *Enabled* allows caching of the system BIOS ROM at F000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Integrated Peripherals

This section sets configurations for your hard disk and other integrated peripherals. The first screen shows three main items for user to select. Once an item selected, a submenu appears. Details follow.

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

CImx-SB700 Revision	4.7.0	ITEM HELP
Onboard Device	Press Enter	
Onboard SATA Device	Press Enter	Menu Level >
Onboard Azalia Device	Press Enter	
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	
PWRON after PWR-Fail	OFF	
USB Device Setting	Press Enter	

Phoenix - AwardBIOS CMOS Setup Utility
Onboard Devices

Onboard Realtek NIC	Enabled	ITEM HELP
Onboard Lan Boot ROM	Disabled	Menu Level >

Phoenix - AwardBIOS CMOS Setup Utility
OnChip SATA Device

OnChip SATA Controller	Enabled	ITEM HELP
OnChip SATA Type	IDE	Menu Level >
Combined Mode	Disable	

Phoenix - AwardBIOS CMOS Setup Utility
OnChip Azalia Device

HD Azalia Audio	Enabled	ITEM HELP
		Menu Level >

Phoenix - AwardBIOS CMOS Setup Utility
USB Device setting

USB 1.0 Controller	Enable	ITEM HELP
USB 2.0 Controller	Enable	Menu Level >
USB Keyboard Function	Enabled	
USB Mouse	Enabled	
USB Storage Function	Enabled	

Onboard Serial Port

These fields allow you to select the onboard serial ports and their addresses. The default values for these ports are:

Serial Port 1	3F8/IRQ4
Serial Port 2	2F8/IRQ3

PWRON After PWR-Fail

This field sets the system power status whether *on or off* when power returns to the system from a power failure situation.

HD Azalia Audio

The default setting of the HD Azalia Audio is ***Enabled***.

Power Management Setup

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

ACPI Function	Enabled	ITEM HELP
ACPI Suspend	S1	Menu Level >
C2 Disable/Enable	Disabled	
Power Management Option	User Define	
HDD Power Down	Disabled	
Video Off Option	Suspend→Off	
Video Off Method	V/H SYNC+ Blank	
Soft-Off by PWR-BTN	Instant-Off	
PowerON by PCI Card	Disabled	
ACPI XSDT Table	Enabled	
HPET Support	Enabled	
RTC Alarm Resume	Disabled	
Date (of Month)	0	
Resume Time Alarm (hh:mm:ss)	0 : 0 : 0	

ACPI Suspend Type

The default setting of the ACPI Suspend mode is ***S1(POS)***.

C2 Disable/Enable

The default setting of this field is ***Disabled***.

Power Management Option

This field allows you to select the type of power saving management modes. There are four selections for Power Management.

Min. Power Saving	Minimum power management
Max. Power Saving	Maximum power management.
User Define	Each of the ranges is from 1 min. to 1hr. Except for HDD Power Down which ranges from 1 min. to 15 min.

HDD Power Down

When enabled, and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

Video Off Option

This field sets the video off option. By default, video goes into suspend state and then Off.

Video Off Method

This field defines the Video Off features. There are three options.

V/H SYNC + Blank	Default setting, blank the screen and turn off vertical and horizontal scanning.
DPMS	Allows BIOS to control the video display.
Blank Screen	Writes blanks to the video buffer.

Soft-Off by PWRBTN

This field defines the power-off mode when using an ATX power supply. The *Instant Off* mode allows powering off immediately upon pressing the power button. In the *Delay 4 Sec* mode, the system powers off when the power button is pressed for more than four seconds or enters the suspend mode when pressed for less than 4 seconds.

HPET Support

HPET, or High Precision Event Timer (formerly known as Multimedia Timer) is a hardware timer that is supported under Linux and Windows Vista. It can produce periodic interrupts at a much higher resolution than the RTC and is often used to synchronize multimedia streams, providing smooth playback and reducing the need to use other timestamp calculations such as an x86 CPU's RDTSC instruction.

PNP/PCI Configurations

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.

Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

		ITEM HELP
Reset Configuration Data	Disabled	
Resources Controlled By	Auto (ESCD)	
IRQ Resources	Press Enter	IRQ Resources
PCI/VGA Palette Snoop	Disabled	
Assign IRQ For VGA	Enabled	
Assign IRQ For USB	Enabled	
PCI Latency Timer(CLK)	64	
Maximum Payload Size	4096	

Reset Configuration Data

This field allows you to determine whether to reset the configuration data or not. The default value is ***Disabled.***

Resources Controlled by

This PnP BIOS can configure all of the boot and compatible devices with the use of a PnP operating system such as Windows 95.

PCI/VGA Palette Snoop

Some non-standard VGA display cards may not show colors properly. This field allows you to set whether or not MPEG ISA/VESA VGA cards can work with PCI/VGA. When this field is enabled, a PCI/VGA can work with an MPEG ISA/VESA VGA card. When this field is disabled, a PCI/VGA cannot work with an MPEG ISA/VESA card.

Assign IRQ for VGA/USB

The default value is ***Enabled***

PCI Latency

PCI latency refers to the number of cycles that any device can hold an IRQ before it is disconnected.

Maximum Payload Size

The default setting of the PCI Express Maximum Payload Size is 4096.

PC Health Status

This section shows the parameters in determining the PC Health Status. These parameters include temperatures, fan speeds and voltages.

Phoenix - AwardBIOS CMOS Setup Utility
PC Health Status

		ITEM HELP
Shutdown Temperature	Disabled	
CPU Warning Temperature	Disabled	
Current System Temp	68℃/ 154℉	Menu Level >
Current CPU Temperature	64℃/ 147℉	
Current GPU Temperature	60℃/ 140℉	
SYS_Fan Speed	3375RPM	
CPU_Fan Speed	3443RPM	
Vcore	1.00V	
12V	11.97V	
1.8V	1.82V	
5V	5.10V	
3.3V	3.29V	
VBAT (V)	3.24V	
3VSB (V)	3.28V	
SYS_DC Fan Temperature	70℃/158℉	
SYS_Fan Tolerance	5	
CPU_DC Fan Temperature	70℃/158℉	
CPU_Fan Tolerance	5	

Shutdown Temperature

This field allows the user to set the temperature by which the system automatically shuts down once the threshold temperature is reached. This function can help prevent damage to the system that is caused by overheating.

CPU Warning Temperature

This field allows the user to set the temperature so that when the temperature is reached, the system sounds a warning. This function can help prevent damage to the system that is caused by overheating.

Temperatures/Voltages

These fields are the parameters of the hardware monitoring function feature of the board. The values are read-only values as monitored by the system and show the PC health status.

Smart Fan Temperature

This field enables or disables the smart fan feature. At a certain temperature, the fan starts turning. Once the temperature drops to a certain level, it`s turn low speed.

Frequency/Voltage Control

Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control

Spread Spectrum	Disabled	ITEM HELP
		Menu Level >

Spread Spectrum

This field sets the value of the spread spectrum. The default setting is ***Disabled***. This field is for CE testing use only.

Load Fail-Safe Defaults

This option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high-performance features.

Load Optimized Defaults

This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

Set Supervisor Password

These two options set the system password. Supervisor Password sets a password that will be used to protect the system and Setup utility. User Password sets a password that will be used exclusively on the system. To specify a password, highlight the type you want and press <Enter>. The Enter Password: message prompts on the screen. Type the password, up to eight characters in length, and press <Enter>. The system confirms your password by asking you to type it again. After setting a password, the screen automatically returns to the main screen.

To disable a password, just press the <Enter> key when you are prompted to enter the password. A message will confirm the password to be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

Save & Exit Setup

This option allows you to determine whether or not to accept the modifications. If you type "Y", you will quit the setup utility and save all changes into the CMOS memory. If you type "N", you will return to Setup utility.

Exit Without Saving

Select this option to exit the Setup utility without saving the changes you have made in this session. Typing "Y" will quit the Setup utility without saving the modifications. Typing "N" will return you to Setup utility.

Drivers Installation

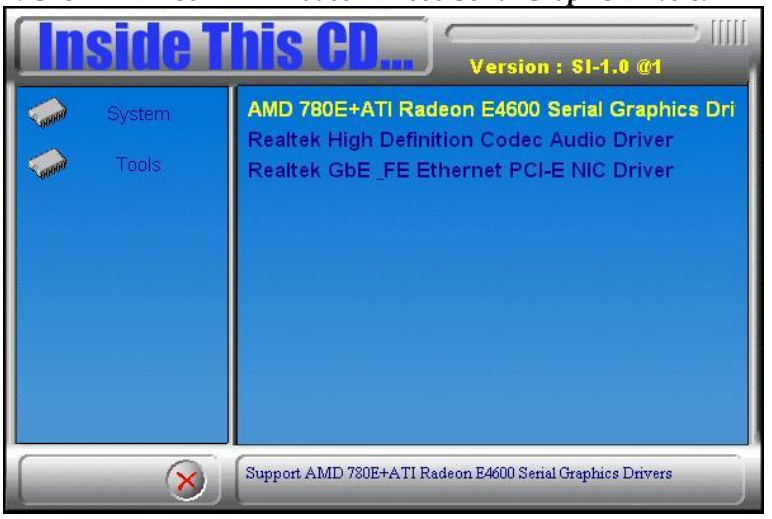
This section describes the installation procedures for software and drivers under the Windows 2000 and Windows XP. The software and drivers are included with the motherboard. If you find the items missing, please contact the vendor where you made the purchase. The contents of this section include the following:

VGA Drivers Installation..... 38
Realtek High Definition Codec Audio Driver Installation..... 41
LAN Drivers Installation 43

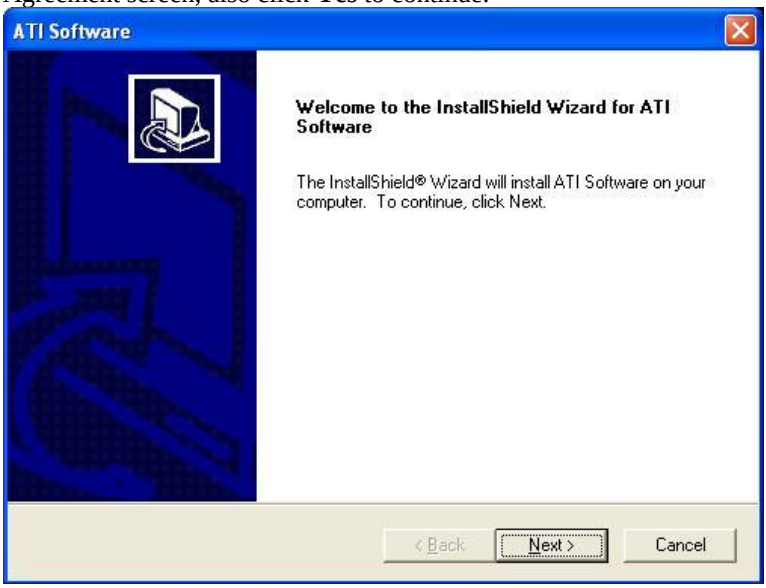
VGA Drivers Installation

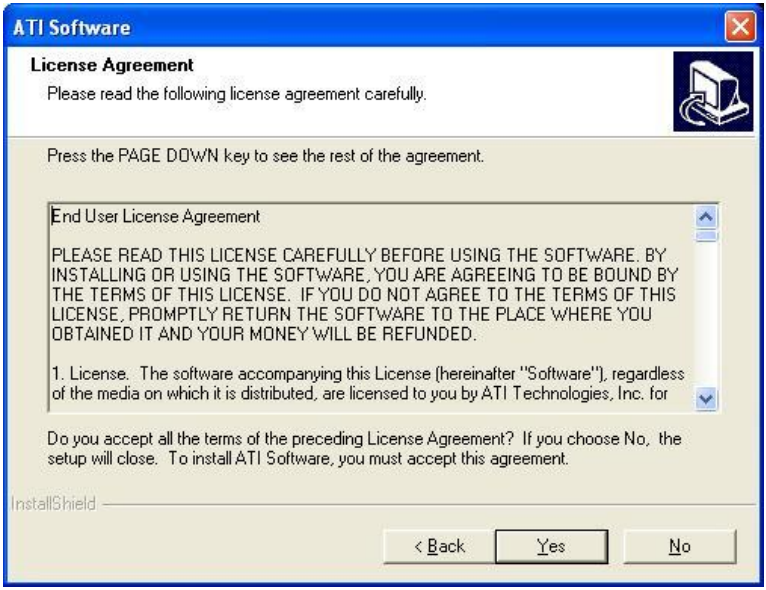
1. Insert the CD that comes with the board. Click ***System*** and click ***SI-28/IB828 Drivers***.

2. Click ***AMD 780E+ATI Radeon E4600 Serial Graphis Drivers.***

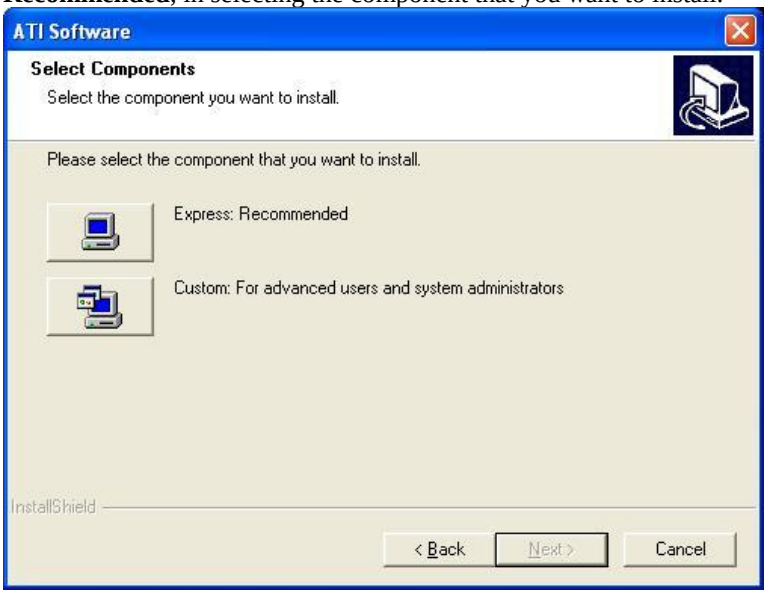

Inside This CD...
Version : SI-1.0 @1
System
Tools
AMD 780E+ATI Radeon E4600 Serial Graphics Dri
Realtek High Definition Codec Audio Driver
Realtek GbE _FE Ethernet PCI-E NIC Driver
Support AMD 780E+ATI Radeon E4600 Serial Graphics Drivers

3. In the Welcome screen, click **Next** to continue. Then, in the License Agreement screen, also click **Yes** to continue.


ATI Software
Welcome to the InstallShield Wizard for ATI Software
The InstallShield® Wizard will install ATI Software on your computer. To continue, click Next.
< Back
Next >
Cancel


ATI Software
License Agreement
Please read the following license agreement carefully.
Press the PAGE DOWN key to see the rest of the agreement.
End User License Agreement
PLEASE READ THIS LICENSE CAREFULLY BEFORE USING THE SOFTWARE. BY INSTALLING OR USING THE SOFTWARE, YOU ARE AGREEING TO BE BOUND BY THE TERMS OF THIS LICENSE. IF YOU DO NOT AGREE TO THE TERMS OF THIS LICENSE, PROMPTLY RETURN THE SOFTWARE TO THE PLACE WHERE YOU OBTAINED IT AND YOUR MONEY WILL BE REFUNDED.
1. License. The software accompanying this License (hereinafter "Software"), regardless of the media on which it is distributed, are licensed to you by ATI Technologies, Inc. for
Do you accept all the terms of the preceding License Agreement? If you choose No, the setup will close. To install ATI Software, you must accept this agreement.
InstallShield
< Back
Yes
No

4. When the **Select Components** screen appears, click **Express: Recommended**, in selecting the component that you want to install.

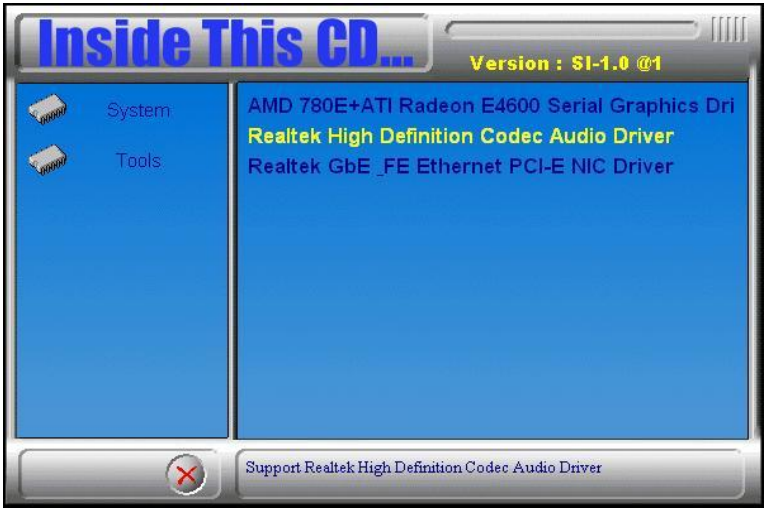


5. When the message regarding Windows Logo testing appears, click **Continue Anyway** to proceed with the driver installation. Setup is now complete. Click **Finish** to restart the computer.

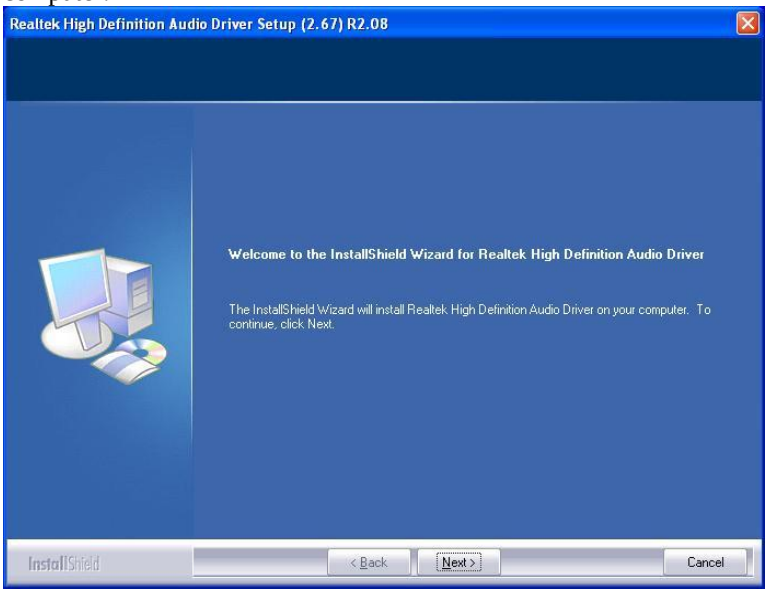
Realtek High Definition Codec Audio Driver Installation

1. Insert the CD that comes with the board. Click ***System*** and click ***SI-28/IB828 Drivers***.

2. Click ***Realtek High Definition Codec Audio Driver.***


Inside This CD...
Version : SI-1.0 @1
System
Tools
AMD 780E+ATI Radeon E4600 Serial Graphics Dri
Realtek High Definition Codec Audio Driver
Realtek GbE &FE Ethernet PCI-E NIC Driver
Support Realtek High Definition Codec Audio Driver

3. In the **Welcome** screen, click **Next** to continue. After the driver installation is complete, click **Finish** on the next screen to restart the computer.


Realtek High Definition Audio Driver Setup (2.67) R2.08
Welcome to the InstallShield Wizard for Realtek High Definition Audio Driver
The InstallShield Wizard will install Realtek High Definition Audio Driver on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

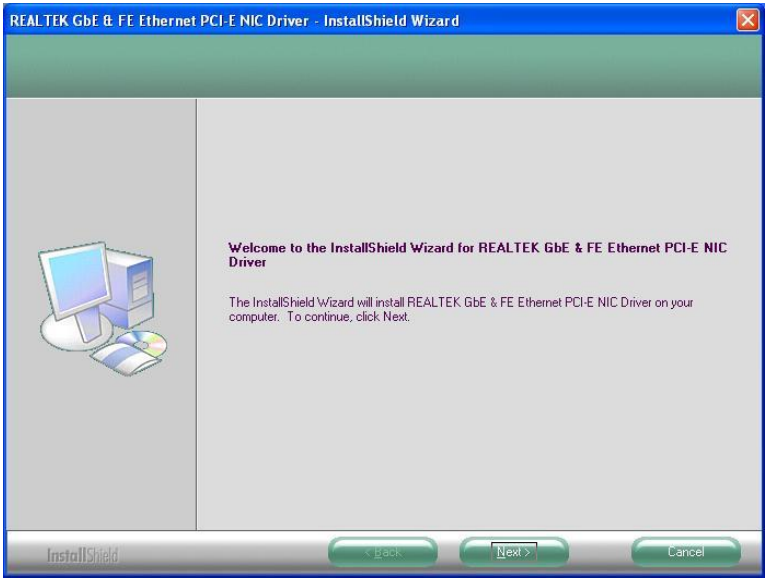
LAN Drivers Installation

1. Insert the CD that comes with the board. Click ***System*** and click ***SI-28/IB828 Drivers***.

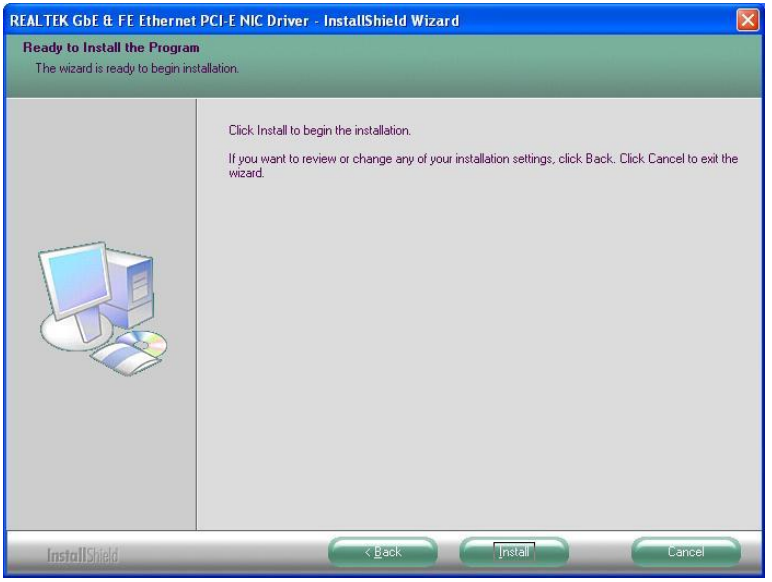
2. Click ***Realtek GbE_FE Ethernet PCI-E Driver..***

Inside This CD...
Version : SI-1.0 @1
System
Tools
AMD 780E+ATI Radeon E4600 Serial Graphics Dri
Realtek High Definition Codec Audio Driver
Realtek GbE _FE Ethernet PCI-E NIC Driver
Support Realtek GbE _FE Ethernet PCI-E NIC Driver

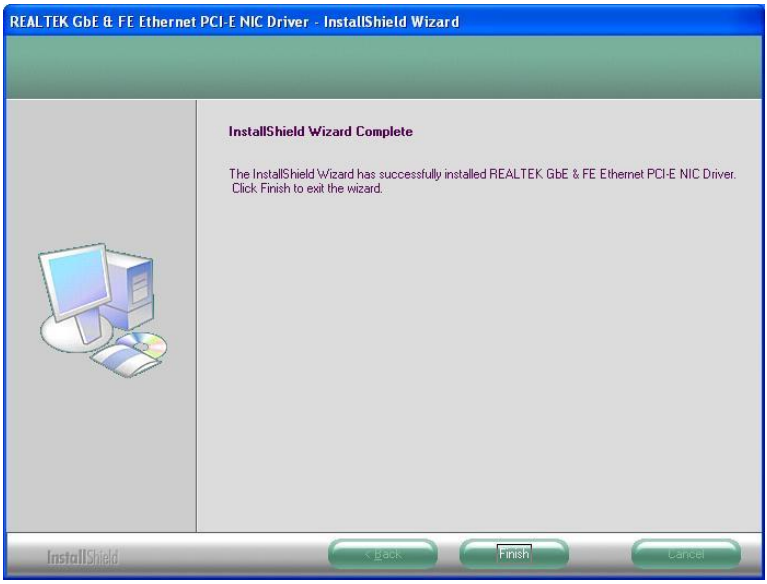
3. When the Welcome screen of the **InstallShield Wizard** appears, click **Next** to continue.


REALTEK GbE & FE Ethernet PCI-E NIC Driver - InstallShield Wizard
Welcome to the InstallShield Wizard for REALTEK GbE & FE Ethernet PCI-E NIC Driver
The InstallShield Wizard will install REALTEK GbE & FE Ethernet PCI-E NIC Driver on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

4. On the next screen, you are asked to click **Install** to begin the installtion process. Now, click **Install** to proceed.


REALTEK GbE & FE Ethernet PCI-E NIC Driver - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

5. Installation is now complete, click **Finish** to exit the InstallShield Wizard.


REALTEK GbE & FE Ethernet PCI-E NIC Driver - InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed REALTEK GbE & FE Ethernet PCI-E NIC Driver. Click Finish to exit the wizard.
InstallShield
< Back
Finish
Cancel

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